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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,039	02/20/2002	Zhihao Yang	82839SMR	6408

7590 12/24/2003  
Paul A. Leipold  
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Rochester, NY 14650-2201

EXAMINER

SHAH, MANISH S

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 12/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/079,039

Applicant(s)

YANG ET AL.

Examiner

Manish S. Shah

Art Unit

2853

AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10/28/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-12 and 14-20 is/are rejected.
- 7) ☒ Claim(s) 3 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 13.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-2, 7-12 & 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Kimura et al. (# US 5955515).

Kimura et al. discloses an ink jet recording method including a liquid ink jet ink containing a thermally responsive material (heat-reversible type thickening polymer) (column: 6, line: 8-35), that will cause the viscosity of the ink to increase rapidly when the ink heated thereby forming a non-fluidic gel at the elevated temperature (figure: 1, 2; column: 7, line: 47-61), and applying the liquid ink jet ink onto an ink jet recording element in an image wise fashion (column: 14, line: 10-22), wherein the ink jet recording element has been heated to a temperature higher than the temperature of the liquid inkjet ink (column: 22, line: 15-26). They also disclose that the ink has a viscosity of less than 10 cps at 22 °C and viscosity of more than 20 cps above the gel transition temperature (figure: 2). They also disclose that ink jet ink contains about 0.1 to 40% of heat reversible type thickening polymer (see Example: 1-9) and about 0.01 to 10% of colorant (column: 12, line: 10-17; examples: 1-9), wherein the colorant is a dye or pigment (column: 11, line: 57-67; column: 12, line: 45-52). They also discloses the

recording element has been heated to the temperature of 35 °C or higher (column: 22, line: 21-23).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4-6 & 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. (# US 5955515) in view of Gundlach et al. (# US 5888285) and Takahashi et al. (# US 3981730).

Kimura et al. teaches all the limitation of the liquid ink jet ink except that: (1) the thermally responsive material comprises a polyethylene oxide containing block copolymer is tri-block copolymer of polyethylene oxide-polypropylene oxide-polyethylene oxide. (2) Thermally responsive material is a methylcellulose copolymer.

Gundlach et al. teaches that to get enhance the viscosity and the stability of the ink, the ink comprises a polyethylene oxide containing block copolymer is tri-block copolymer of polyethylene oxide-polypropylene oxide-polyethylene oxide (column: 17, line: 10-30).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to incorporate the copolymer taught by Gundlach et al. in to the ink

composition of Kimura et al. because the presence of the copolymer in the ink is reduced or eliminate the inter color bleed when printed adjacent to another ink, and increase the stability of the ink.

Takahashi et al. teaches that to get the excellent hue separation in multi color printed image, the ink comprises a methylcellulose copolymer.

It would have been obvious to one of ordinary skill in the art at the time of invention was made to incorporate the copolymer taught by Takahashi et al. in to the ink composition of Kimura et al. because the presence of copolymer in the ink reduces or eliminate the inter color bleed when printed adjacent to another ink, and due to that printed image have excellent hue separation.

***Allowable Subject Matter***

3. Claims 3 & 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The ink jet ink has viscosity of less than 10 centipoises at 22 °C and viscosity of more than 1000 centipoises above its gel transition temperature.

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(1) Kimura et al. (# US 5854307) discloses an ink jet recording method including a liquid ink jet ink containing a thermally responsive material (heat-reversible type thickening polymer), that will cause the viscosity of the ink to increase rapidly when the ink heated thereby forming a non-fluidic gel at the elevated temperature (column: 5, line: 45 to column: 8, line: 35), and applying the liquid ink jet ink onto an ink jet recording element in an image wise fashion (column: 9, line: 25-35), wherein the ink jet recording element has been heated to a temperature higher than the temperature of the liquid inkjet ink (column: 19, line: 15-25, column: 20, line: 1-5). They also disclose that ink jet ink contains about 0.1 to 40% of heat reversible type thickening polymer (see Example: 1-11) and about 0.01 to 10% of colorant (examples: 1-11), wherein the colorant is a dye or pigment (see Examples). They also discloses the recording element has been heated to the temperature of 35 °C or higher (column: 20, line: 1-5).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manish S. Shah whose telephone number is (703) 305-1562. The examiner can normally be reached on 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (703) 308-4896. The fax phone

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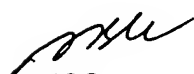
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number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-4900.

Manish S. Shah  
Examiner  
Art Unit 2853

  
MSS  
12/20/03